Paper/Work

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LAWRENCE LIVERMORE POSTDOC ASSOCIATION

2012 POSTDOC BBQ PICNIC AT LAKE DEL VALLE

By Eric Wang; photos by Kirsten Howley and Eric Wang.

I.

"The BBQ was wicked awesome" – Lance Simms, former LLPA president

The first people to show up were responsible for setting up the event. Tables needed covering, drinks needed icing, and charcoal needed heating. Despite the mundane nature of this preparation, the event organizers were clearly excited. With the mood matching the magnificent sunny weather, the people setting up were already cracking jokes and relaxing in anticipation of The Biggest LLPA Social Event of the Year! — the annual Postdoc BBQ, held July 13 at beautiful Del Valle Park.

II.

"It was great having an event with a lot of postdocs – it reinforces a sense of community. I met several new faces at the Postdoc Association BBQ, and I have (and will continue) seeing them around the Lab, in the cafeteria, or at other Postdoc Association events. That makes it easier for everyone to feel integrated into the Lab. It's important for the place you work to have a social dimension, and the Postdoc Association does a great job of facilitating that." - Charles Reid, LLPA web team and Lightning Talks host.

Life as a LLNL postdoc is rightly centered about producing research, since the potential of future employment is directly tied to such accomplishments. It is not surprising then, that the normal circumstances are for a given postdoc to interact solely with members of their research group and have limited exposure or knowledge of what is happening even one or two buildings away. However, it is well known that those who stay with the Lab often find work matrixed into different divisions. Consequently, promotion of social events in which people of different research groups and divisions interact is of implicit value to the health of the Lab.

2012 POSTDOC BBQ PICNIC, CONTINUED

III.

"Eric wrote an awesome email to get people excited about attending!" – Eric Wang, author of this article and said email.

The LLPA held a planning meeting a week before the BBQ to discuss how to increase ticket sales for the upcoming BBQ picnic. Typically, the annual Poster Symposium occurs before the picnic and provides a face-to-face opportunity to advertise and sell tickets. However, this year, the Poster Symposium was scheduled after the BBQ and only 15 tickets had been sold by the time of the planning meeting.

"Well, the majority of tickets are always sold the week of the event." "Hey let's get a goofy email advertising the picnic. It worked last year." "Good idea," "Yea I agree." (Editor's note- this conversation is not *exactly* what happened).

IV.

"I had an awesome time cooking burgers to feed all the postdocs. Also swimming in the lake was really fun!" Andre Schleife – LLPA social events team

"Hi! (big smile) Welcome to the picnic, please enjoy a [beverage]." The picnic is underway now, with over 90 tickets sold, as Lab members/friends/family begin arriving alone or in small groups. Many are wearing the newly designed postdoc t-shirts (available in men's and women's sizes). Some purchase t-shirts at the event. All appear ready to partake in the amiable atmosphere, with the beautiful lake and grassy hills in view. Aside from the grilled items and drinks provided, potluck items ranged from undoubtedly healthy (e.g. peaches and celery) to undeniably delicious (e.g. cake and chips). All attendees are socializing. Some brought children, and the sounds of nature (birds, insects, gusts of wind) have been replaced by laughter and conversation. Tables, some with shade and some without, are full of lively postdocs and guests, enjoying the Postdoc BBQ.

V.

"A picture may be worth a thousand words but add a smile and it's worth a million." - Found on the internet

POSTDOC HIGHLIGHTS: NOTES TO THE DIRECTOR

NNSA scientist engagement addresses nuclear security challenges
Research conducted by **Kim Knight** (former postdoc) and **Amy Englebrecht** (current postdoc), in collaboration with four Ukrainian institutes, to identify signatures of different uranium-bearing material samples was highlighted in a press release issued by the NNSA on July 26. Their work, sponsored by NNSA's Global Initiatives for Proliferation Prevention (GIPP) aims at enhancing Ukraine's ability to counter illicit nuclear and radiological material trafficking, and directly contributes to a key goal of the 2012 Nuclear Security Summit and the Global Initiative to Combat Nuclear Terrorism. The GIPP program mitigates the risk of expertise proliferation through science and technology collaborations and partnerships among foreign research institutions, U.S. national laboratories, and U. S. industry to develop innovative technology solutions in such priority areas as nonproliferation, counterterrorism, and energy security.
http://nnsa.energy.gov/mediaroom/pressreleases/scientistengagement072612

New method improves corrosion resistance of multilayer coatings for EUV/x-ray optics Multilayer interference coatings have revolutionized numerous science and technology fields by enabling efficient normal-incidence imaging in the extreme ultraviolet (EUV) to x-ray wavelength region. Multilayers composed of alternating layers of magnesium and silicon carbide (Mg/SiC) have the potential to be the best-performing reflective multilayer coating in the 25–80 nm wavelength region but they have traditionally suffered from corrosion of the Mg layer, an insidious problem that completely degrades the reflectance properties. The corrosion issue has prevented Mg/SiC from being used in multilayer mirrors for high-visibility NASA missions such as the Solar Dynamics Observatory and the GOES-R space weather satellites. In a paper published on July 24, 2012 in the journal *Applied Physics Letters*, researcher Regina Soufli and colleagues **Monica Fernandez-Perea** (former postdoc), Sherry Baker, Jeff Robinson, Jennifer Alameda, and Chris Walton explain the origins and mechanisms of corrosion propagation within Mg/SiC multilayers. Based on that analysis, they developed and demonstrated an efficient and simple-to-implement corrosion barrier for Mg/SiC multilayers, which they describe in the paper. The barrier consists of nanometer-scale Mg and Al layers that intermix spontaneously to form a partially amorphous Al- Mg layer, which, as the the team has shown, prevents atmospheric corrosion while maintaining the unique combination of favorable Mg/SiC reflective properties.
http://link.aip.org/link/doi/10.1063/1.4737649

POSTDOC HIGHLIGHTS, CONTINUED

New technique described for dark-matter searches

A paper entitled "First Direct Detection Limits on Sub-GeV Dark Matter from XENON10," co- authored by researcher **Peter Sorensen** (former postdoc), has been featured as an Editor's Suggestion in the journal, *Physical Review Letters*. Numerous experiments worldwide are searching for direct evidence of galactic dark matter. The expected signal is a handful of quanta (electrons, phonons, or photons), created as a result of the interaction of a particle of dark matter with the nucleus of an atom of ordinary matter. Gravitationally bound dark matter has a typical velocity of about 220 km/s, so for most target nuclei kinematics preclude searching for dark matter particles with masses below about 10 GeV. Sorensen's paper describes how existing data from the XENON10 dark matter search experiment can be used to probe for the existence of dark matter particles with far lower masses -- as low as ~10 MeV. This significant advance, which sets the first direct-detection limits in this mass range, resulted from looking for 1-, 2- and 3-electron signals coming not from dark matter-nucleus collisions, but from dark matter-electron collisions. The results of the paper are particularly significant because they point the way to future experiments that can probe heretofore unexplored regions of dark-matter parameter space.
http://link.aps.org/doi/10.1103/PhysRevLett.109.021301
http://physics.aps.org/synopsis-for/10.1103/PhysRevLett.109.021301

"Best Paper Award" at chemical propulsion conference

A presentation by postdoc **Kyle Sullivan**, describing research on the preparation and characterization of thermite composites, was chosen as the best oral presentation at the 9th International Symposium on Special Topics in Chemical Propulsion, held July 9-13 in Quebec City, Canada. The presentation reported on the use of emerging additive manufacturing technologies to synthesize and investigate the reaction mechanism of thin films of thermites deposited onto fine-featured patterned electrodes. This research has revealed a new transport mechanism important to the reactivity that can be activated by coupling multiple length scale features into the design. This finding will be important for further efforts to build thermite parts, with the reactivity specified and tailored through the use of micro-engineered architectures as building blocks. Kyle presented the work on behalf of team members, Josh Kuntz and Alex Gash.
http://9isicp.org/00-welcome_e.shtml

COMMENTS/SUGGESTIONS/PRAISE/COMPLAINTS?

Please send your feedback to the Editor (Nathan Kugland, kugland1@llnl.gov).

CAREER RESOURCES

Upcoming Events

Academic Briefing on Continuing Education
August 29, 12-1 pm; B1879 Room A
Still can't get enough of school? Learn about pursuing further graduate degrees, certification, or job-related coursework.

LLNL Family Days Open House
October 13-14
Celebrate the 60th anniversary of the lab with family and network with your colleagues! Register and get more information here.

PHD TO PATENT ATTORNEY

Toby Thompson earned his Ph.D. in organic chemistry before transitioning to a position as a private practice patent attorney in London, a process he describes in a *Nature* interview.

How does patent law compare to a research career?
"My current role involves helping inventors who are working at the boundaries of science, and it is always interesting to learn about their inventions. The challenge as a patent attorney is to combine your scientific knowledge with an appreciation of the law, so that our clients can obtain the best protection possible. Although the challenges are different from those facing a research chemist, I think they are equally rewarding."

Where do you see the future of your career?
"The law in this field is always developing, and now seems to be a particularly interesting time to be involved in patents, given plans in Europe to establish a Unitary Patent and a Unified Patents Court. Although I enjoyed my time as a research chemist very much, I have no plans to return to the bench (which is probably a good idea; after 4 years away I might be dangerous)."

What advice do you have for scientists looking to transition?
"I would definitely recommend the patents profession to anyone wishing to make use of their scientific background but who does not want to work directly in research…Employers are usually looking for a strong scientific background – a scientific degree is essential – coupled with good analytical and language skills. An important feature of the job is the ability to understand and explain new concepts."

WHAT IS A SCIENTIST?

Compiled by Nick Be

Scientists are not always portrayed in the popular media in the most flattering light – at best we are known as awkward loners, and at worst as maniacal sociopaths bent on world domination. Recent efforts in social media are attempting to change these perspectives by drawing attention to the everyday lives of real scientists.

A recent project at Fermilab asked children to draw and describe scientists before and after meeting guest speakers, with opinions changing from "I think of a scientist as very dedicated…and kind of crazy" to "Scientists lead a normal life…they are interested in dancing and pottery." A new tumblr blog, *This is what a scientist looks like*, also attempts to dispel typical stereotypes, with real pictures of real scientists.

Hopefully these efforts will provide the public with a uniquely personal perspective… at least until Michael Bay's next action movie: *Fifth resubmission of manuscript MS789: This time it's personal.*

The Best Places to Work in Academic Biosciences
The Scientist, August 2012

1. J. David Gladstone Institutes
2. Sage Bionetworks
3. Stowers Institute for Medical Research
4. Research Center for Molecular Medicine of the Austrian Academy of Sciences (CeMM)
5. Massachusetts General Hospital

JOB LINKS

Science – Featured jobs:
http://scjobs.sciencemag.org/featured-jobs/
Nature – Jobs of the week:
http://www.nature.com/naturejobs/science/
Official LLNL jobs site: careers.llnl.gov
Postdoc listings: www.postdocjobs.com
Academic jobs: www.academickeys.com
APS Careers in Physics: www.aps.org/careers
Government jobs: www.usajobs.gov/
Industry jobs: www.indeed.com
http://jobs.newscientist.com/
sfbay.craigslist.org/sci/
www.linkedin.com/jobs

SELECTED RECENT POSTDOC RESEARCH PUBLICATIONS

Bold = LLNL Postdoc. *Broadcast your achievements! Make new connections & help show how we are doing collectively.*

Guidelines: 1) Peer-reviewed and accepted publications (journal or conference proceedings) only; 2) Your affiliation must be LLNL; 3) Prepare a standard-format citation with all authors (no *et al*), the full title, journal/proceedings info, and a link to the online abstract; 4) Note which authors are LLNL postdocs, and in what division & group; 5) Send all of this to Nathan (kugland1@llnl.gov).

Computation/CASC: Thomas G.W. Epperly, Gary Kumfert, Tamara Dahlgren, Dietmar Ebner, Jim Leek, **Adrian Prantl** and Scott Kohn, "High-performance language interoperability for scientific computing through Babel," International Journal of High Performance Computing Applications, Vol. 26, N. 3, p. 260-274, 2012. http://hpc.sagepub.com/content/26/3/260.abstract

Engineering/CED/Materials Modeling and Simulation Group: **Shawn A. Chester**, 2012, "A constitutive model for coupled fluid permeation and large viscoelastic deformation in polymeric gels," Soft Matter 8, 8223-8233. http://pubs.rsc.org/en/content/articlelanding/2012/sm/c2sm25372k

NIF/Inertial Confinement Fusion and High Energy Density Science: **N. L. Kugland**, B. Aurand, C. G. Brown, C. G. Constantin, E. T. Everson, S. H. Glenzer, D. B. Schaeffer, A. Tauschwitz, and C. Niemann, "Demonstration of a low electromagnetic pulse laser-driven argon gas jet x-ray source," Appl. Phys. Lett. **101**, 024102 (2012) http://link.aip.org/link/applab/v101/i2/p024102/s1

PLS/AEED/Program for Climate Model Diagnosis and Intercomparison: **Barton, N. P.**, S. A. Klein, J. S. Boyle, and Y. Y. Zhang (2012), "Arctic synoptic regimes: Comparing domain-wide Arctic cloud observations with CAM4 and CAM5 during similar dynamics," Journal of Geophysical Research-Atmospheres, 117, D15205, doi:10.1029/2012JD017589. http://www.agu.org/pubs/crossref/2012/2012JD017589.shtml

PLS/Biosciences and Biotechnology Division/Biochemical and Biosystems Group: **Timothy S. Carpenter**, Edmond Y. Lau, Felice C. Lightstone, "A Role for Loop F in Modulating GABA Binding Affinity in the GABAA Receptor," Journal of Molecular Biology. Volume 422, Issue 2, 14 September 2012, Pages 310–323 www.ncbi.nlm.nih.gov/pubmed/22659322

PLS/Chemical Sciences Division, Advanced Materials Synthesis Group: **Olson, T. Y.**; Orme, C. A.; Han, T. Y.; Worsley, M. A.; Rose, K. A.; Satcher, J. H.; Kuntz, J. D., "Shape Control Synthesis of Fluorapatite Structures Based on Supersaturation: Prismatic nanowires, ellipsoids, star, and aggregate formation," CrystEngComm, 2012, in press. http://pubs.rsc.org/en/content/articlelanding/2012/ce/c2ce25711d

PLS/Condensed Matter and Materials Division: **S. Charnvanichborikarn**, J. Wong-Leung, C. Jagadish, and J. S. Williams, "Direct correlation of R-line luminescence with rod-like defect evolution in ion-implanted and annealed silicon," MRS Commun., Available on CJO August 2012. http://dx.doi.org/10.1557/mrc.2012.17

PLS/Condensed Matter and Materials Division/High Pressure Physics Group: Choong-Shik Yoo, Haoyan Wei, Ranga Dias, Guoyin Shen, Jesse Smith, **Jing-Yin Chen**, William Evans, "Time-Resolved Synchrotron X-ray Diffraction on Pulse Laser Heated Iron in Diamond Anvil Cell," J. Phys.: Conf. Ser. **377**, 012108 (2012) http://dx.doi.org/10.1088/1742-6596/377/1/012108

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